

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of)	
)	
Inquiry into)	
Over-the Air Broadcast)	MB Docket No. 04-210
Television Viewers)	
)	

Comments Of Thomas C. Smith

I am writing these comments in response of the Media Bureaus request for comments on over-the-air viewing. These comments are solely mine and represent no other organization or person. I have been employed as a technician in the broadcast television industry for the past 35 years.

As I am individual and do not have access to information that trade organizations, academia and interest groups have access to, I will use my interpretations of information given in the January, 2004 FCC Report on Video Competition. I will also give my comments on this effort by the Media Bureau.

The Numbers

The Media Bureau asked for numbers concerning the numbers of views that receive only off-air TV and those who get a multi-channel program service and still use off-the-air broadcast TV. I took these numbers from the January 2004 Video Competition Report. The first thing I found about trying to figure out where one is getting their TV service is that the numbers are not exactly accurate. Just determining the number of homes is difficult. The Census Bureau claims that as of July 2002, there were 119.3 million households in the US. The Video Completion Report says there were 106,641,910 TV homes as of the end of 2003. Nielsen claims there are 108.4 million TV homes as of the end of June 2004 as printed in the weekly TV ratings chart in Broadcasting and Cable. The numbers of these homes that do not watch off-the-air local TV and get their TV from subscription services is normally given as 85%.

The first numbers I looked at is the number of homes that subscribe to each subscription service. According to the numbers in the Competition Report either 65.9 million homes or 70.49 million homes subscribe to cable. In the text of the report, it was listed that number as 65.9 million several times. In a chart at the back of the report, the number of 70.49 million was given which is a difference of about 4% of the homes with TV. Direct broadcast satellite had 20.36 million homes as of the end of 2003 with another couple of million added since the beginning of the year. Satellite Master Antenna Systems (SMATV) service about 1.2 million homes; MMDS serves 200,000 homes and is fading fast. C-band satellite dishes are in 502,000 homes and those

numbers are decreasing also. C-band satellite also serves 3500 hotels and 3000 SMATV systems. MMDS and C-band have lost 2.6 million homes mostly to DBS. SMATV has lost about 400,000 homes to cable and DBS.

Adding up the 65.9 million cable subscribers, 23 million DBS subscribers, and the 1.9 million SMATV, MMDS and C-band satellite subscribers, the total comes to 90.8 million homes that subscribe to a TV service or 84% of the homes. The number goes to 95.4 million homes when the larger cable number is figured in. This is equal to 88% of the homes. Thus either 12 % or 16 % of the TV homes use a multi-channel program provider.

The next question is how many of those subscribers get their local TV station from their subscription service. First, we know that all of the cable subscribers get their local stations from their cable company for at least one or more of their TV's. MMDS may or may not transmit the local stations. C-band users do not get any local TV on their dish. SMATV subscribers get local TV from their provider, but as this service mainly comes via C-band, the local stations are received from an off-the-air antenna in the apartment or condo complex. Finally, DBS subscribers may be able to receive local stations from their dish depending on the TV market they live in. According to the report 58% of all DBS subscribers do receive local stations via their dish with that number running at 75 % in the markets that the local-into-local service is an option. Some DBS users outside of any TV market get local stations from other parts of the country. All of the subscribers to cable or DBS may be getting their local stations off-the-air indirectly as most of the pick-up points for DBS use off-air signals as do many cable systems. It is mainly the large metropolitan cable systems that receive local stations via cable or fiber from the stations control room. Small rural and systems at a distance from the stations usually receive their signals over-the-air.

Adding up the 13 million to 17.6 million homes with no subscription TV service, the .5 million C-band users, the 1.2 million SMATV subscribers, the 200,000 MMDS subscribers and the 42% or 9.7 million DBS subscribers that don't get local into local, the total number of homes that get local TV off the air is 24.6 million homes or 22.6% of the homes with TV. If you use the smaller cable number, the total number of homes getting their local TV from off-the air is 29.2 million or 26.9 percent of the homes with TV's. The 108.4 million homes figure from Nielsen was used for the total number of homes. The Nielsen number of TV homes is 10.9 million homes less than the number of homes that the Census Bureau lists.

The Commission also needs to look at sets that overlooked numbers in measurement of TV audiences when determining analog TV set usage. That would be sets in TV subscribers homes not hooked to the subscription service, TV's in hotels, dorms, second homes and places of business. In most signal family homes with cable, most of the sets are hooked to analog cable service. A number of years ago, that may have not been true when cable systems charged an additional fee per outlet, but since per outlet fees have gone away, most of the sets are now hooked to the cable. That may change as some systems are going to all digital and existing analog sets will require a digital set-top box

to receive any cable TV. Cable service in apartments is another story. In many apartments, there is only one cable outlet in the living room, so any TV in another room such as a bedroom either relies on rabbit ears or a cable run down the hall. This was a common scenario in the apartments that my daughter lived in during college and is the current situation in her current apartment where the set in the bedroom is on rabbit ears. Homes with DBS differ from cable homes as far as sets that receive local TV from the DBS provider. We know from the Competition Report that 42% of the homes do not get local-into-local service. When all markets get the local-into-local service the number should drop to the 25% level that currently exists in the markets with local-into local. But because many families are dropping cable and getting DBS to cut costs for subscription to TV services, they may opt to use off-the-air instead of paying another 4 or 5 dollars. Also, because it costs 5 dollars more per month to activate each additional DBS receiver plus the additional cost to purchase the receiver, not all sets in the home may have a DBS receiver. Finally all those DBS subscribers to VOOOM and the subscribers to DirecTV and Dish TV's hi-definition services will need to use off-air analog or DTV services to receive programming from the broadcast networks.

The most forgotten users of off-the air reception are places of business. One reason is that Nielsen does not rate the viewing of TV in hotel and dorm rooms or in offices. More and more hotels are subscribing to program packages from DirecTV or Dish and receive the local stations off the air. There is a cluster of 16 hotels near a regional shopping center about 5 miles from my home. Of the 16 hotels, five have dishes and broadcast TV antennas on the roof. Both Dish and DirecTV provide local-into local to businesses, but many opt for off-the air to avoid the cost of additional satellite receivers and modulators. Many of the local sports bars also have TV antennas and dishes. Other business must rely on off-the-air because the cable does not run pass the building. Many cable companies did not run the cable in business or industrial districts because there were few potential subscribers. Most waiting rooms that I have sat in with a TV were using off-the-air signals. Because of cable modems and the Internet, cable is now being extended to these areas.

The last place that may not be counted for over-the-air reception would be second homes. These homes may make up some of the difference from the Census bureau numbers and the Nielsen and FCC's numbers of TV homes. The difference from the Census bureau numbers and the Nielsen and FCC numbers is nine per cent of the homes according to the Census. While there are some homes without TV, I believe that number is less then 9%. Some of those have to be vacation homes, many with a TV. How many people would pay for cable or DBS for a place they may only use several times a year. Even if they use it more often, unless the vacation home is on a lake shore or other built up area, the cable probably does not pass the vacation home anyway and they have to use DBS possibly with a TV antenna.

When you add the 23 to 29 million homes that get local TV off-the-air, add the second and possible third and fourth set in those homes, the sets in DBS local-into-local homes that are not connected to receivers, the millions of TV's in hotels and other places of businesses, the National Associations of Broadcasters estimate of 80 million TV's out of

more than 300 million TV's in this nation are using off-the air signals may be true. It also means that there would be large numbers of sets that would lose access to local TV service if analog transmitters were required to be shut down before the marketplace is ready. And besides the 80 million TV's little has been said about all of the video cassette recorders and TIVO devices that are on top of many of this TV's. They will have to have access to digital signals in order to record programs that a viewer may want to view later.

THE BROADCAST USERS

I do not know of very many people who do not subscribe to either cable or DBS if they want more than broadcast TV programming. If, they are in a cabled area, they get cable. If they are in a rural area, they get DBS. Those in urban areas that I know get DBS instead of cable for more choices in programming or to cut their programming costs. I see Dishes going up with and without TV antennas on a regular basis in my community. It is not uncommon to see two or three dishes on the homes per block. On my block with 16 homes there are three dishes. I live within 15 miles of the local TV transmitters, so many without TV antennas could be using rabbit ears or not watching local TV. Local into local is just starting in my area. My next store neighbor installed both a dish and an antenna. There are a couple of more DBS dishes on the block without an antenna and they were there before local into local. I know that if I were to subscribe to DBS, I would use the cost of local into local for the second receiver fee. Besides I know what the highly compressed local into local signals can look like and it's not as good as broadcast analog.

I also have relatives and friends who do not subscribe to DBS or cable because they do not have a lot of time to watch a lot of TV and so don't wish to pay for cable or DBS. There are others I know who don't use cable or DBS because they wish to limit the use of TV and by having only a few channels, they keep the usage down. Others don't use cable or DBS because they just don't like much of today's TV programming.

Finally, I know there are some who cannot afford cable or DBS, but I doubt that they are the majority of the 12 to 16 percent that only use over-the-air for their TV viewing.

ADDRESSING ANALOG SETS IN THE DTV TRANSITION.

The reason for this inquiry is to identify those using over-the-air TV which is still mostly analog and find a way to get them to switch either to over-the-air digital TV or subscribe to a multi-channel program provider that will provide their local TV service. This is so the FCC can shut down analog transmitters and auction the spectrum. I see many problems with this theory.

All the proposals in this notice seem to have one large problem; they require a large amount of interference in the free market. While I believe that the government has a place in regulating the marketplace, I believe that the government's place extends only to issues of keeping the marketplace fair, helping to avoid chaos in the marketplace and watching out for the public safety. I do not believe that forcing people to adopt one

technology over another is the place of government. At that point the government is creating an unfounded mandate and a form of tax. The only exception would be requirements that increase the safety of a product or helps protect the environment.

In this inquiry, there were a number of suggestions made on government action to get viewers to purchase set-top boxes or use other methods to get people to make the conversion from analog to digital. I doubt that any of them would be realistic. There are several reasons that any of these proposals are not realistic. The first is cost. Even if the government bought one set-top box per household and only did it for those with lower incomes, the total would come to over a billion dollars. I guessed that the government would have to supply about 5 million boxes at 200-250 dollars for maybe a third of the home using over-the-air TV only. Currently the cheapest set-box that I know of is one from Motorola for \$299. Producing boxes in larger amounts than are produced presently would reduce the cost from that \$299 level. On top of that, we do not know what the auctions would bring in. For the first 24 MHz out of the 84 MHz of TV channels to be auctioned off, the total only came to \$686.3 million. That is 24% of the channels available for auction. That amount times 4 for the total amount of the TV spectrum would come to 2 billion and 745 million dollars, if the rest of the spectrum is sold for the same value as the first group did. I do not believe that the spectrum is worth 70 billion or so as Senator McCain and others have stated. Those numbers were based on an auction in Britain that brought in \$35 billion and one in Germany that brought in \$45 billion. Both companies that won those auctions ran into difficulty for overpaying for the Spectrum. In over ten years of auctions, the FCC has brought in a total of approximately \$ 25 Billion according to the auction web page. That included winning bids for the valuable PCS bands, not including the proceeds of Auction 35 in which the winning bids were refunded.

Even if the government did buy one set-top box per household for the lowest income homes, those who would have to purchase the boxes themselves or subscribe to a service would not be happy citizens and would probably make their voices heard loudly. I am sure that hotel, restaurants and tavern trade associations would make some noise, as these are the largest groups using TV's outside of the private home.

In the April 1998 issue of TV Broadcast, now named Digital TV, there was a commentary that addressed the cost to the consumer versus the income that the auction of spectrum would bring in. While the numbers have changed with time, the idea of his article has not changed. I have appended a copy of the commentary to my comments.

Believing that the costs for any program may reduce any auction returns by a large amount, the next issue is how do you administer it. It would cost a large amount of money to identify the homes to receive the subsidy, mail checks or deliver set-top boxes. Then how do you prevent fraud? Any program is going to be expensive.

I believe that the transition is a little behind, but momentum is starting to improve. There are a number of things that need to be done by all parties involved, the FCC, the TV stations and the consumer electronics industry. The first problem was getting

transmitters built and TV's in the stores. Even though some stations are behind the FCC deadline, I think broadcasters have done pretty well. They have duplicated in six years a system that was built up over a period of 50 years. There has been some problems getting HDTV programming on the air, but that has been greatly improved in the last year. There are also some multi-casting business plans with the start of USDTV in Salt Lake City and the Emmis Broadcasting Proposal.

The consumer electronic industry needs to deal with a number of very important issues. The first is training sales people on DTV better. Most can sell a wide screen monitor, but are hard pressed to explain the use of a set-top box. And set-top boxes are a problem. First, there are only a couple of set-top boxes on display in some back corner. The boxes are not user friendly in many cases and need updates that many users do not know about and are unable to install. They have to be at least as simple to operate as current analog sets. The biggest improvement in DTV reception has been the next generation of tuner electronics. We may now have a receiver that produces near perfect reception in nearly any environment.

Then the next consumer issue is the lack of VCR's and hard drive recorders. Thanks to the Motion Picture industry, we have had too many hurtles in getting these devices to market. Viewers will not embrace DTV if they cannot take advantage of all the features and devices they have for analog TV. The new generation of set-top boxes, the rules requiring DTV tuners in sets and the recent order on copy protection should help get more choices of electronics to the consumer.

The biggest problem I see with the transition is consumer awareness. I don't think that many people fully understand the transition. There have been a few articles in the newspapers, and a few stores advertise HDTV but I don't not hear or see people buying the DTV tuners. With tuners in less than one percent of the homes, there is a problem with transition. As a technician in broadcasting, I get questions about TV's and electronic gear, but I have only been asked about DTV and HDTV a couple of times. I find that rather telling about the effectiveness of the information reaching the general public. Who is to blame for the lack of awareness? I would say it is everyone involved. I seldom see a promo on any TV station explaining DTV, little advertising from the consumer electronics industry, and very little from the FCC other than the DTV web page. I have looked at web sites in Britain and the BBC, the Government, and the electronics manufacturers all have extensive web sites. Even with that and have a higher penetration of DTV with over 3.5 million homes because of Freeview, there was a report this spring that DTV was not understood by the British public according to an article in PublicTechnology.net. If they are having awareness problems with all that information, it is no wonder that we are in worse shape because of our greater lack of available information. All parties involved in the transition to DTV must make awareness programs a high priority.

And finally, any deadline set by the FCC and Congress must be realistic. We cannot follow the lead of Berlin, there are too many sets in the United States to deal with and many of those sets have a lot of life in them. Because today's sets use less power and

produce less heat, they last longer. I have a set that was use almost daily and is 16 years old and still works fine and never has been repaired. Most of my TV's have last 10 to 15 years. There are lots of sets like mine that people own and will not replace until the sets die. Because of the longer life of today's TV's, the transition deadline has to be reasonable. The December 31, 2006 deadline is not. I doubt that the 2009 deadline is attainable either. When the DTV rules were first discussed, a deadline of 2011 was given. I believe that deadline close to realistic with an actual deadline between 2011 and 2015 possible. I don't think we need the 21 years as required fro Britain to shut off the 405 line system, but I think it was realistic to expect it to take 12 to 15 years from when new DTV sets started to show up in stores and a significant number of stations got on the air which was during the years 2000 to 2001.

Summary

In summary, there are up to 80 million sets that rely on analog over-the-air TV, with 25 million homes rely on off-the-air for local TV and 12-15 Million homes relying on off-the-air for all TV viewing. The transition is progressing, not as fast as hoped, but in the last year there have been significant increase of momentum. There needs to be greater awareness of the transition to the public so that those 25 million homes do convert to digital reception. The question asked for basically in this inquiry is what can the FCC and the government do to speed up the transition. If the government is fiscally responsible, there is not a lot that can be done other then increasing awareness of the transition. The will involve a partnership with the consumer electronics industry and the TV broadcasters. As far as the speed of the transition, until some of the effects of the DTV and copy protection rule makings from August 4, 2004 are understood and take hold, particularly the channel election, I don't think a probable deadline can be given. As far as the future auctions of any TV spectrum, holding on to the spectrum may not be a bad thing. Deficits are projected well into the future, so the money can be used later and saving some spectrum for future technologies may be smarter than having to do more reallocations and disruption of incumbents. And finally we may be surprised by the speed of the transition. Hopefully, more DTV consumer equipment will become available and prices will drop closer to that of analog TV, conventional hi-definition projection TV's are already only a couple of hundred dollars higher then standard definition projection sets. And if broadcasters and the cable and DTV industry can provide a lot of content in high definition and broadcasters can provide new services that place them more on a par with multi-channel providers, DTV may take off like DVD players.

As someone who has worked in broadcasting for 35 years, I feel that the FCC and Congress also have a responsibility to avoid causing severe damage to a \$40 billion industry that employees 10's of thousands of people and provides the primary local TV service to this nation.

Respectfully submitted

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August 11, 2004

Appendix 1
1998 Commentary From TV Broadcast
EDITORIAL

April 1998

TV Broadcast VIEWPOINT page 27

Is High Definition TV Worth The Cost?

When radio was first introduced, it must have been really exciting! Imagine moving a wire around on a crystal, and actually hearing another human voice through the air, many miles away. Or how about the early years of TV, when you could see and hear new and exciting people and places. It's harder to get us excited about new audio and video technologies now since we're basically dealing with refinements on things we're already used to. Look at the other "great," but dead, consumer audio and video formats of the last 20 years: reel-to-reel audio died, 8-track died, DAT was dead on arrival, consumer S-VHS also dead on arrival, Betamax died, 8mm is almost dead, laser disc died, and the list goes on.

Now for the new millennium we have high definition TV (HDTV), so we'll be able to see everything in more detail. Wow! Well maybe not wow, but how about "neat?" The question is, what do we want to see in more detail. I thought this whole thing through? With all due respect, do we really want to see aging television stars in high definition? I have the feeling that the make-up artists are working to full capacity as it is. Maybe we'll end up with high definition through diffusion filters. (Would that be back to what we have now?) If TV is for entertainment, do we really care about high definition? Yes, possibly a few of the high quality educational channels would be able to benefit from the "picture window" look of their programming, but what about the other 99 percent?

COSTS

A review of the costs to implement HDTV might help us to see the rest of the "picture." Just for starters, there are about 100 million US households who will have to budget for the new high definition TV, since the new HD signal isn't compatible with current NTSC equipment. I'll bet several foreign economies are looking forward to the boost

this will give to their GNP.. What percentage of the 100 million households are prepared to write a check for \$3,000 for a new HDTV? One manufacturer introduced a unit at the January Consumer Electronics Show (CES), but the initial price was quoted at \$8,000. (Line forms to the left.) Let's use a more realistic \$3,000 price, since new technology prices always adjust in a few years, and let's be optimistic and say that 20 million households are anxious to buy into this new "picture window" TV. Twenty million x \$3,000 = \$60 billion dollars.

The rest of us can just buy a "black box" to add to our present NTSC sets that will translate the HD signal back into NTSC. Great, except the price of the box is projected at about \$250, and we would need a box for each NTSC TV we want to use. Add a conservative 80 million "black boxes" for us "poor" folks. How many of us want to spend \$250 just to keep the signal we now have for free? But let's add this retrofit cost: 80 million black boxes at \$250 each = \$20 billion dollars.

Are Americans really ready to go back to the "one TV for the family room" household era of the 1950's? What about the TV's in the bedroom, kitchen, garage, kids room- more "black boxes please." Oh well, that's progress.

Not so fast, we aren't done yet. Those 20 million "early adopter" rich guys don't have a VCR for their HD programs. Should they just buy a "black box" and record it in NTSC on their existing VCR or should they get a new HD VCR to keep the benefits of their HD TV? No word yet as to HD VCR prices, but you can bet they're going to make present VCR's with HiFi look very cheap. HD signals at tradeshow are currently provided by a studio VCR of D-1 quality, costing \$50,000 or so, but let's get real for consumers; \$1,000 is a great deal, so let's just add: 20 million HD VCR's x \$1,000 = \$20 billion.

Now, there is going to be some waste, since many customers won't spend the \$250 for the "black box" for each of their current TVs. Let's assume that each household will have one or two TVs that don't get the HD signal. Let's add this on: 100 million households x 1.5 wasted TVs (average) x average cost of \$250 = \$37 billion.

But wait, current VCR's won't work without "the box" either, so I guess there will be a bunch of surplus VCRs too. The good news is that us non-adopters will be able to keep our NTSC TVs and our NTSC VCRs and watch our library of recorded tapes and rental tapes, too. (I'm surprised that the government didn't think of this loophole! Score one for the little guys.)

What about DVD, the new disc format that the video industry plans on replacing pre-recorded rental videotapes with. Who's in charge of this one? To get DVD, we will need to buy a "player only" for \$400 (or so) and the DVD discs sell for \$20 rather than the 12 bucks we're used to for VHS. But don't forget we'll get CD sound quality! How many consumers care? How many opted for the VHS-HiFi for only \$20 extra over the non-HiFi versions? The percentage is quite low, since most consumers just don't use the HiFi output. But now, these same consumers are supposed to pay \$400 for better sound quality on DVD. Is there some added benefit of DVD that I'm missing? Let's leave this one for another article.

What other additional costs should we add for HDTV? We also have to add the TV station implementation cost for a new tower, transmitter, and other new digital HD equipment. Experts smarter than I have already estimated the cost for getting on line to be about \$20 million per station. If we figure a way to cut this cost in half for the 1,600 (or so) TV stations in the US, we have another hidden cost of \$10 billion more. This hidden cost will have to be absorbed by the advertisers who look to us, the consumers, for their return.

So let's summarize. We get high definition TV. We also get a data channel for computer stuff. (Why do I sense the computer guys are behind this to get even richer than they already are?)

Maybe it's time to take a fresh look at this "TV as entertainment thing" again and decide if HDTV is really wanted by the consumers who will have to pay the bill. Will the broadcast networks survive if their costs go up and their advertising revenue goes down due to few viewers? What if cable operators stay with NTSC- will their viewers increase by the 80 million non adopters? Perhaps this is just the government's sneaky way to do away with the 1,600 TV stations in the U.S., since with reduced viewers and advertisers, who will pay their increased costs?

Maybe someone should suggest that the bureaucrats simply assess a few on every household of \$250 to get their \$25 billion, and then maybe they would leave our free entertainment alone. (Each household would save over \$1,300 and have all their TVs and VCRs working again.) If we tread into paranoia just a bit, perhaps the bureaucrats are craftier than we think and have figured out a way to put the TV news hounds out of business- sounds like a good thing for shady bureaucrats. If we want to maintain our free TV system, maybe it's time to tell the FCC and our politicians what we really think of their great idea for helping to pay off the deficit.